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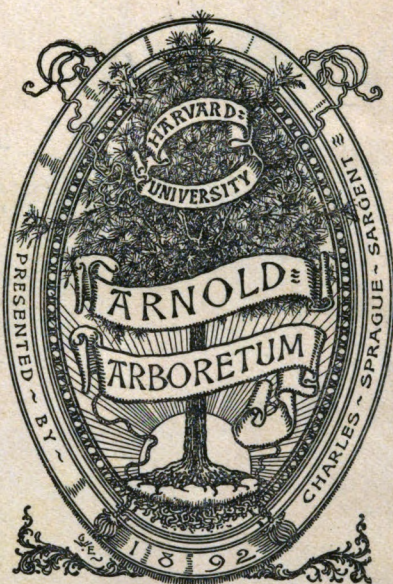




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United States — Bureau of topographical  
**REPORT** engineers.

OF

**BREVET BRIGADIER GENERAL N. MICHLER,**

IN CHARGE OF

**PUBLIC BUILDINGS, GROUNDS, WORKS, &c.**

Wash. 1867.

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REPORT  
OF  
BREVET BRIGADIER GENERAL N. MICHLER,  
MAJOR OF ENGINEERS, UNITED STATES ARMY,  
IN CHARGE OF PUBLIC BUILDINGS, GROUNDS, WORKS, &c.

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OFFICE OF PUBLIC BUILDINGS, GROUNDS, AND WORKS,  
CAPITOL OF THE UNITED STATES,  
*Washington, October 1, 1867.*

GENERAL: On the 16th of October, 1866, I had the honor to submit my annual report for the fiscal year ending on the 30th of June of that year. At that time it was stated that plans of the military operations in front of Petersburg and Richmond, including detailed drawings of forts, redoubts, batteries, and mines, and topographical sketches of the various battle-fields from the Rapidan to Appomattox Court House, together with a large number of maps of the country exhibiting the lines of march of the contending armies, were in course of construction. The surveys cover an area of nearly fifteen hundred square miles. The following brief recapitulation will show the number of sheets, their different scales, and the several sections into which the whole field of operations is subdivided:

I. The general maps, two inches to the mile, represent the country between Cold Harbor and Appomattox Court House, comprising thirteen sheets.

II. The detailed maps are on a scale of eight inches to the mile, twenty-nine in number; eight illustrating the intrenched positions in front of Petersburg, and the remainder the lines of works around Richmond and along the James river above its junction with the Appomattox.

III. Ten sheets, scale of four inches to the mile, exhibit the most important battle-fields, comprising the Wilderness, Spottsylvania Court House, Tolopotomy, Cold Harbor, Five Forks, Jetersville, Sailor's Creek, Farmville and Appomattox Court House.

IV. Thirteen sheets, one inch to the mile, show the original maps issued at the commencement of the campaign of 1864.

V. Three sheets of sections of the last mentioned issue, corrected and distributed on the march.

VI. The index sheet, scale  $\frac{1}{250000}$ , is a general map of the country lying east of the Alleghany mountains, and extending from the battle-field of Gettysburg on the north, to the South Side Railroad of Virginia, on the south.

VII. One hundred and eleven drawings of forts, redoubts, batteries and mines, the scale of the respective plans being forty feet to one inch. The entire portfolio numbers one hundred and eighty sheets of antiquarian, embracing not only all the operations during the war of the army of the Potomac, but also of the army of the James and of the several detached commands engaged in Virginia.

At this date the maps are entirely completed, with but two or three exceptions, the surveys having been made with great accuracy and the topographical features of the country delineated on them with great care.

Whilst engaged in superintending the construction of these military maps, I was, in addition to that duty, detailed to carry out the directions of the Com-

mittee on Public Buildings and Grounds of the Senate of the United States relative to the selection of a suitable site for a public park and presidential mansion.

The views of the committee were imparted by its chairman, Hon. B. Gratz Brown, in several communications, of the 24th and 26th of July, addressed to the honorable Secretary of War; he therein requested that an engineer officer be placed in charge of the preliminary surveys of certain tracts of land adjoining or near the city of Washington, the preparation of the necessary maps and reports for the purpose above named, which, in the language of the Senate resolution of the 18th of the same month, "shall combine convenience of access and healthfulness, good water and capability of adornment;" in addition to this to ascertain, if practicable, the price of said lands. After a careful examination of the many beautiful localities to be found in the vicinity of the capital, and having caused an accurate and detailed survey of its environs to be made, I had the honor to address a communication, dated January 29, 1867, to the chairman of the committee, submitting for his consideration the result of my investigations. In connection with that report two preliminary maps were presented, showing, more plainly than words can express, the required information and the respective advantages of the different sections surveyed. A copy of my report is herewith appended, (Senate miscellaneous document No. 21, second session, thirty-ninth Congress,) together with reduced photograph copies of the now complete topographical sketches accompanying it. It will not be necessary to accumulate words, after so much has been written and so ably spoken in advocating an improvement so essential to the comfort and pleasure of every enlightened community. The attentive perusal of the very comprehensive remarks and beautifully expressed sentiments delivered by the honorable chairman of the Committee on Public Buildings and Grounds in the Senate of the United States, on the 20th of February of this year, concerning the bill for the establishment and maintenance of a grand national park in the District of Columbia, at the expense of the United States government, will convince the most prejudiced judgment. It will not fail to urge the earliest action of Congress in carrying out the hopes expressed by the honorable senator, already almost unanimously concurred in by the Senate, as well as the earnest wishes of those most interested in the adornment of the capital of a great nation, that no unnecessary delay may occur in passing the needful laws for accomplishing such a grand and beautiful undertaking. A copy of Mr. Brown's speech, together with the bill reported from the Senate committee to establish a public park in the vicinity of Washington city, are herewith appended; the bill passed the Senate, but was laid on the table of the House of Representatives during the last hours of the session.

By the second section of an act of Congress approved March 2, 1867, "the duties heretofore imposed by law upon the Commissioner of Public Buildings are devolved upon the Engineer Bureau, as well as the Superintendent of the Washington Aqueduct, and all the public works and improvements of the United States in the District of Columbia not otherwise provided by law." I had the honor, by engineer department orders dated March 13, 1867, to be assigned to execute the duties above stated, and at once to enter upon their performance. Immediately upon the receipt of these instructions, I called upon the Secretary of the Interior and the late Commissioner of Public Buildings, and received from them all the books, records, archives, and papers pertaining to the office of Commissioner of Public Buildings, and to the public works referred to in the act cited, and at once proceeded to the discharge of the duties appertaining to each of them. These are of such a diversified character that this report will only refer to the most important ones, and these in most general terms. I shall first consider such works in course of construction or undergoing repairs which are already authorized by different acts of Congress, and will then suggest some

additional improvements in connection with the growth of the city as appear to be eminently necessary and ornamental. The different bridges across the Potomac and the Anacostia, or Eastern Branch, have either been rebuilt or placed in as good repair as the limited amount of the appropriations would admit. The one familiarly known as the Long bridge is, by actual measurement, four thousand six hundred and sixty-one feet. The sections are differently constructed, and of the following lengths:

First, built on piles.....	1, 960 feet.
Second, draw (north side).....	134 feet.
Third, gravel road on causeway.....	1, 967 feet.
Fourth, draw (south side).....	148 feet.
Fifth, brace and frame work, supported by cribs.....	452 feet.
Total.....	4, 661 feet.

It will be remembered that in consequence of the heavy masses of ice which lay against and crushed the bridge at different points, it had been rendered impassable for some months. The appropriation of fifteen thousand dollars enabled me to place it in such repair as to allow travel across it to be resumed. Much more work is still required to make it stand until a more substantial, suitable, and architectural structure be built to span this magnificent river. I have been ordered to prepare a special report to the bureau in regard to the improvements of the channel of the river, and surveys are now progressing to show what changes have recently taken place; the bridge question is so intimately associated with this subject, that it will necessarily form a part of the discussion. The first section of the bridge is in very good condition, having been recently placed so; the second (north draw) will have to be rebuilt, as the timbers are decaying, and a more solid support must be substituted for the present pile one; the third is in good repair—the brick side-walls are damaged in many places, and require attention both for safety and appearance; the fourth (south draw) is in good working order; the fifth requires so many repairs as to almost necessitate the entire rebuilding of that portion. Although in much better condition, it is said, than for many years past, still it is doubtful if it can stand against the ice and freshets of another winter. An early appropriation, an estimate of which is respectfully submitted, is earnestly urged, as the work should be commenced without unnecessary delay.

The bridge over the Potomac, near the Little Falls, is in a most dilapidated condition. Having been greatly used during the war, with little or no care taken to keep it in good preservation, it is now in danger of giving way; the timbers of most of the spans, especially the three nearest the Virginia shore, are much worn and decayed. The bridge should have been covered to protect the wood, and the latter whitewashed to keep it sound. The flooring is much worn, and travel over it has become dangerous; only by the most careful attention on the part of the watchman can accidents be avoided. It would probably be economy to take the bridge down and rebuild it. An estimate of the cost of repairing has been carefully prepared and submitted.

The lower or navy-yard bridge and the upper or Benning's bridge, over the Anacostia or Eastern Branch, are now both in good condition; the former has been recently renovated, and the latter substantially rebuilt. Neither of them for many years will require any extensive repairs; the flooring alone will have to be replaced from time to time. The large amount of the various commodities for market which pass over each of these several bridges enumerated, and the necessity for which so materially interests the largely increasing population of the city, will surely recommend favorable action upon the appropriations for their prompt and speedy improvements. Major T. Luby, one of my assistants, has had the



immediate supervision of these works ; he has always given prompt attention and general satisfaction in carrying out my instructions.

The fence around the botanical garden has been advanced as far as the appropriation will admit; about eleven hundred and thirty feet are finished. The upper part is of iron, and the lower of brick; the latter rests upon a stone foundation, and is covered with a fine North river flag coping. Two additional faces of the grounds have still to be enclosed with a similar fence. The pavement on the north front (the south side of Pennsylvania avenue) should be regraded and repaved, as it is now much below the grade of the avenue. A pavement should also be laid on Maryland avenue, along the south front. These improvements, which should be of flagging, will greatly add to the general appearance of the grounds. A very beneficial change is being effected by the construction of a culvert through the garden, which converts the exposed bed of the lower portion of Tiber creek into an extensive sewer. This work will not only remove a disagreeable feature from the sight of the many visitors who frequent the conservatories of rich and rare exotics as well as native plants there collected and arranged, (under the special care of Mr. W. R. Smith, for many years the superintendent of the botanical garden,) but will also aid in improving the sanitary condition of a section so nearly contiguous to the grounds surrounding the very Capitol of the nation. It would be well if the same system could be adopted in covering from sight and smell that pestiferous ditch of water styled the "Washington City canal," into which the Tiber empties. This canal will be referred to in a subsequent part of this report. It is to be very much regretted that the culvert cannot be completed this year, owing to the limited means on hand. Of the appropriation for the fiscal year ending the 30th of June, 1867, over seven thousand dollars was applied to other works by the late Commissioner of Public Buildings, and of that for the fiscal year ending June 30, 1868, the whole amount has been expended, without finishing it. An estimate for enabling me to do so is submitted. Owing to the large extent of land drained by the Tiber, a great accumulation of sand, gravel, and some very deleterious substances are washed down and deposited in the bed of the stream, throughout the length of the culvert, and into the canal. Some action should be taken to arch over this stream from where it crosses Pennsylvania avenue to the extreme northern limits of the city; the same reasons apply that have been given for covering the lower portion. In addition, some system of gravel pits and dams, for collecting the washings of the soil, should be arranged at different points, and the banks protected by sodding or masonry. The management of the Tiber must be treated in the light of a main sewer for a large and growing section of the city, and all improvements projected with that object in view. During the second session of the thirty-ninth Congress a bill was introduced in the Senate of the United States to arch Tiber creek.

The pavement of flag stones laid along Pennsylvania avenue and Seventeenth street in front of the War and Navy Departments, forms one of the best and most needed improvements in that portion of the city; it has given most general satisfaction, and should be still further extended along the street towards and around the south front of the President's grounds. Several very important renovations have been attended to during the summer at the Executive Mansion, and the building is now in very excellent order. The conservatory, a large part of which was destroyed by fire and the remainder of the framework decayed by the constant moisture of the heating apparatus, has been almost entirely rebuilt; the wing of the main structure requires to be thoroughly overhauled. It is to be regretted that a larger appropriation was not made in order that the old greenhouse might have been removed, and a more ornamental and tasteful one erected. Most of the valuable and rare plants, which so pleased and gratified the tastes of the many visitors from every part of the country, were

destroyed by the fire which nearly consumed the building; to replace these, and to make important additions to them, will require an expenditure of several thousand dollars, which no doubt the liberality of Congress will furnish. The furnace of the Executive Mansion has been thoroughly examined and repaired, and some needed changes made in the apparatus for better regulating the distribution of the steam for heating. The roof of the mansion is also being placed in better condition, and many minor matters attended to. A larger appropriation is asked for annual repairs for the next fiscal year, as experience has taught me that the present one is entirely inadequate for so extensive a building.

#### PUBLIC SQUARES AND RESERVATIONS.

The plan adopted by General Washington for laying out the city of Washington consists of wide streets and avenues intersecting each other; the former, running from north to south, designated by numbers, and from east to west, called by letters, cross each other at right angles, and are again cut diagonally by avenues bearing the names of the different States of the Union. In consequence of this system many public places have been formed, consisting of circles, triangles, and squares; in different parts of the city sections are set apart as reservations for the benefit of citizens and for public buildings. Many of these have already been beautified, and the remaining ones should be improved as early as possible; while adding so much to the appearance of the city, they at the same time largely contribute to the health, pleasure, and recreation of its inhabitants. The grounds immediately about the President's house are in excellent condition, and have been a favorite resort for many. The reservation to the south, and extending to the canal, generally known as the "White Lot"—the scene of so many games of ball—should now be laid out and included in the above. As the work on the Treasury extension is drawing to a close, the workshops, which have heretofore interfered with this improvement, can be removed, and the plans of adornment be extended. One of the most charming places for recreation is Lafayette square; it has been made very beautiful, but owing to the ground being so level there is defective drainage; by adopting a system of under-ground drains leading towards the southwest angle, and thence connecting by a sewer through the avenue with that on Seventeenth street, this objection can be remedied. A very marked change has taken place in the appearance of Franklin square, but still more has to be done. During the fall months it is proposed to set out a large number of deciduous trees, to further ornament the beds; a large number of evergreens have already been planted, and are in a flourishing condition. The square has already been under-drained, and the paths have been substantially laid. An iron fence is still needed to properly enclose it. The Circle at the intersection of Pennsylvania and New Hampshire avenues and K street west, also presents a most pleasing feature to the gaze. The grounds west of the Capitol are in excellent order, and form one of the great points of attraction both for citizens and strangers; those to the east have been very generally resorted to, large crowds collecting from time to time to listen to the music of the band which weekly performs there. In all of these comfortable lodges have been built for the watchmen. The enlargement of the grounds north and south of the Capitol is being made under the immediate direction of the architect of the Capitol extension; the roadway and paths on the east front should be handsomely paved. A recent and very interesting letter from General Meigs, now travelling in Europe, describes, in great detail, the style of pavement in use for public squares in several of the large cities, and should be adopted in our own capital; a copy of the letter is appended.

Most of the triangular places along the main avenues have been enclosed, and some of them very prettily ornamented with trees and shrubbery: a great deal more in the way of similar improvements should be attended to as soon as prac-

licable, as they not only very much enhance the value of property, but afford for both rich and poor the means of enjoyment. Particular attention is called to Lincoln square, which has been simply enclosed by a paling fence; the beds and paths have still to be laid out, trees and shrubbery planted, and other important changes to be made. It is the only square in the eastern part of the city, and it is due to the increasing growth of that section, that steps should be taken at once to ornament the grounds. The vacant places at the intersections of Pennsylvania avenue with North and South Carolina, those where Georgia and Virginia avenues cross each other, and the square formed by the meeting of Maryland and Massachusetts avenues, should also be enclosed and improved. These are all east of the Capitol, a hitherto much neglected portion of the city as far as the general government is concerned. Extensive changes have taken place there in the last few months; streets have been opened and graded, gutters paved, curbs set, pavements laid, and many houses are being built.

Passing to that part of the city to the west of the Capitol the following suggestions are offered in regard to future improvements: The two triangular spaces on Vermont avenue between I and K streets have been united and now form one square, making a most agreeable alteration. It is proposed to make a corresponding square on Connecticut avenue between the same streets as soon as the frame buildings of the Freedman's Bureau, now occupying the public space, shall be removed. Circles should also be laid out on Vermont avenue where it intersects Massachusetts and Rhode Island avenues, and also at the intersection of Massachusetts, Connecticut and New Hampshire avenues. The value of these improvements can be scarcely realized. The reservation known as Judiciary square is sadly in need of embellishment; it can only be attended to when the frame buildings used by the medical department of the army are taken down. It is to be hoped that they can soon be dispensed with. Several prominent citizens, among others the General commanding the United States army and the mayor of the city, have urgently requested that a new square be opened on New Jersey avenue between H and I streets north. This is a very beautiful and commanding part of the city, and many valuable buildings have been erected, and others are still in course of construction. It is earnestly urged upon Congress to make an appropriation for purchasing the necessary ground. The triangular space located at this point belonged not many years ago to the government, but was sold by authority of one of the previous Commissioners of Public Buildings. In planning the city, a large reservation, known as Mount Vernon place, was laid out at the intersections of K street north with New York and Massachusetts avenues. Most unfortunately for the ornament and health of that part of the city, the original design has not been perfected. Eighth street has not only been opened through it, separating it into two parts, but on one of these divisions has been erected a most unsightly building for a market house. The latter, with its attending annoyances, forms an intolerable nuisance, which should be abated at once. On market days the most offensive matter accumulates in the adjoining streets, greatly detrimental to the health of the residents in the neighborhood. The refuse vegetable matter thrown from the wagons of the hucksters, and the offal from the stall of the butcher, mingle with the filth created by the many animals which are brought and allowed to stand around the place, causing a most disagreeable stench, especially in summer, and thereby engendering sickness. By what authority the market is located on this public reservation cannot be ascertained. It should be removed, and arrangements similar to those in all our large cities be adopted to supply the wants of the community. The grounds could then be improved and become what they were originally intended to be.

A nuisance similar to this has been created by the dilapidated and unsightly buildings on Pennsylvania avenue known as the "Centre Market." This too

should be abated ; it is not only a reflection upon the good taste of the community that such an old and objectionable structure should meet the gaze upon the principal avenue of the capital, but it is a disgrace to, see this main artery, connecting the Capitol with most of the public buildings, obstructed by such a diversified and by no means pleasing collection of commodities as are usually offered for sale on every market day. Cannot a more suitable locality be found and one equally convenient of access ? And cannot an ornamental as well as a commodious market be erected which will be a credit to the city ? Something should be done towards improving the public spaces formed by the intersection of Pennsylvania and Louisiana avenues. As long, however, as the market wagons are allowed to occupy them it is useless to attempt any needed reforms. If the corporation does not take the necessary steps to remove the cause of this great nuisance by erecting a suitable and imposing structure, the government should resume control of the reservation for the purpose of improvement. It is still a matter of controversy whether the government has yielded its claim to it, and whether the corporation holds it by any other title or authority than that of actual possession.

But to proceed to the consideration of another of the reservations directly under my charge brings me to the large section immediately south of the canal, and reaching from near the Capitol west to the banks of the Potomac ; these grounds are generally denominated "the mall." The extent of this reservation is greater than any other within the city limits, and is centrally located for the establishment of a limited park for a large part of the city. Only one portion of it has been tastefully laid out in accordance with the plan proposed by Mr. Downing in 1851, and approved by Mr. Fillmore, then President of the United States. A great deal of additional work has to be executed before perfecting the system adopted. Unfortunately the grounds are subdivided by several transverse streets running north and south ; formerly there were but three of them—Seventh, Twelfth, and Fourteenth—but lately, by direction of Congress, another, Sixth street, has been opened. Could these streets be made subterranean by tunnelling, the different parts of the mall could be thrown into one, and thereby furnish ample space. As this is not practicable, owing to the level nature of the ground, another plan might be adopted. Let the whole extent of the reservation be laid out in carriage ways, paths for equestrians, and walks for pedestrians, as if the different parts formed a unit ; gates with their lodges could be placed where the different walks would pass from one section to another, the crossing of the streets between them being handsomely paved with flagging. The keepers of these gates, selected from the many dependent and worthy soldiers who have been disabled during the war by loss of an arm or leg, could, by some mechanical arrangement, manœuvre, while seated in their lodges, the gates, opening or closing them for the passer by. The government experimental farm would have to be removed to some more suitable place without the limits of the city, and the various frame buildings, used by the army during the war for hospitals, would have to come down. The basin at the mouth of the Tiber might be partially filled, thereby giving an increased number of acres, and suspension bridges could be built across the canal, uniting the grounds to those south of the presidential mansion. By some such plan beautiful and continuous drives could be had between the latter building and the Capitol, free from all the dust and noise and bustle of the busy streets of the city. The accompanying sketch will illustrate the ideas which I have endeavored to convey. It is to be hoped, too, in the event of such improvements, that action be taken by the association having the matter in charge towards the completion of the monument being raised to the memory of Washington.

*Fountains.*—In all the contemplated improvements of the public grounds of the Capitol, one very ornamental, as well as sanitary, feature should not be forgotten ; the free introduction of water, as jets d'eau, fountains, miniature lakes,



into each and all of them, will greatly enhance their charms by refreshing and cooling the heated atmosphere of summer, and by the preservation in all their natural beauty of the various shrubs and trees which adorn them. The abundant supply furnished from the great falls of the Potomac by the Washington aqueduct will be a never-failing source from which to obtain all that may be needed for such purposes. Groups of statuary should be artistically arranged throughout the grounds as another evidence of enlightened taste. Additional propagating houses should be built to furnish and replace the various plants needed for embellishment.

The Washington canal is a work upon which much has been written, and many suggestions offered in reference to its permanent improvement. All admit that in its present condition it is a great nuisance, extremely disgusting to the senses of both sight and smell. It is nothing more than an open sewer, constantly generating noxious gases, which are most deleterious to those not only residing immediately along its banks, but to the inhabitants of the entire city. Many plans have been proposed for cleaning it, the most impracticable and expensive having generally been adopted. An inspection will show how signally the last project—executed at an expense to the city of some sixty thousand dollars—has failed in accomplishing the much-needed reform. It is the main artery of the sewerage of the largest part of the city, it being the receptacle not only of the excrement and sediment of the sewers, but also of the surface drainage. In addition to this an immense quantity of material is washed into it at every heavy rain by the Tiber. No one can appreciate the large amount of deposits thus formed unless by actual examination. After carefully examining the subject, the following conclusions have been arrived at as the most feasible :

In the first place, the course of the canal should be altered at certain points, so as to remove all sharp angles, and its bed be excavated by dredging to such a depth as to bring the sole at least below the line of low tide of the river. A portion of the width of the canal along the north side should be then enclosed by a substantial wall, and arched over, converting it into a regular sewer. The river at high tide would, to a certain extent, aid in cleaning it; but a more efficient way would be to make free use of the aqueduct water for thoroughly flushing it at frequent and regular periods. The remaining section of the canal should be kept constantly dredged after the first labor of deepening it is executed; but very little additional work will be annually required. It could then be used for the ordinary purposes of trade, and also become an ornament to the city, instead of remaining the filthy water-course that it now is. As the sewers of all the public buildings empty into it, a proportional part of the expense of placing it in order should be borne by the government, and annual appropriations be made to keep it open and clean. A general system of sewerage should be adopted. In all other cities this subject commands more attention than any other. Whether the government, the corporation, or private enterprise undertake the work, it is absolutely necessary that it should be performed at once, and in the most thorough manner. An improvement, such as is now contemplated, will not only benefit the health of the city, but increase the value of property along it. Instead of the present unsightly structures and heaps of rubbish and dirt, magnificent mansions would spring up, embellished by beautiful gardens. What a great advantage it would be to the mall, the approaches to which are over the canal, the latter extending along its whole length on the north.

Being a member of a board of engineers instructed to examine an improved ship-lock, recently patented, in relation to "its adaptation to aiding in the construction of a ship-canal through the city of Washington," the subject of certain improvements in the present canal will probably be discussed at considerable length.

In addition to the public grounds, the officer in charge has the care and im-

provement of all the avenues, twenty-one in number, and certain of the streets passing through or adjoining them. Many of these have been opened, and it is respectfully recommended that authority be given to improve the remaining ones. They form the direct line of communication between different sections of the city, and between many of the public buildings and grounds. In justice to property holders along them, and for the public convenience, the grades should be established as soon as practicable, that each may know the condition of his property before planning any new improvements; the roadways should be placed in good travelling condition. Massachusetts, New Hampshire, Connecticut, New Jersey, Vermont, Delaware, New York, and Maryland avenues should be graded. But two appropriations were made during the second session of the thirty-ninth Congress for this purpose. That "for grading and repairing Virginia avenue" has been applied to the repairs lying between Sixth and Ninth streets east. By an arrangement made with General O. O. Howard, Commissioner of the Bureau of Freedmen, the work has been extended; the grading and gravelling has been completed to Tenth street, and the grading as far as Twelfth street. Part of the following square has also been graded, the necessary excavation furnishing a very superior gravel to form the superstructure of other portions of the avenue. When the appropriation was nearly exhausted General Howard offered to furnish a certain amount to enable me to employ laborers to continue the work, paying the men out of funds donated for the support and relief of indigent freedmen, and intrusted to him for distribution; the balance of appropriation remaining on hand was then applied to the hire of carts. This work has been most substantially done, and very creditably to Captain T. A. Stone, who has had the immediate superintendence of it. The advantage of opening and improving this avenue is already experienced; a large amount of the travel crossing the lower bridge, over the Eastern Branch, is now diverted from Pennsylvania avenue, east of the Capitol, finding other ways of approach to the markets of the city. Forming with Massachusetts and Pennsylvania avenues parallel roads throughout its entire extent, between the Eastern Branch and Georgetown, the improvements should be continued, and an estimate has been submitted for that purpose.

The oldest and greatest thoroughfare from one limit of the Capitol to the opposite one, connecting the most important public buildings and grounds, is Pennsylvania avenue; a glance at the map shows that it is the most central. In consideration of the great importance of this avenue, the relative position it bears to all the avenues and streets, which either diverge from it in every direction or intersect it along its entire length, some most marked improvements should be inaugurated to render it as great and beautiful in appearance as it has proved to be necessary and accessible. The very limited appropriation has enabled me to make only such repairs as were most needed; some sections had become almost impassable, either from the effects of the weather, or from having been cut up by the immense amount of travel over them, or from both causes combined. It is now only in tolerable order, although it is said to be in much better condition than for many years past. The seat of government of a nation should be able to boast of at least one magnificent avenue; that part extending from Rock creek, its boundary on the west, to that splendid pile of architecture, the Capitol, should receive the advantages of the most improved road-way. There is scarcely a street or avenue in the city over which one can drive with ease and comfort; it is only lately that the Belgian pavement has been laid to any extent, and the agreeable contrast experienced between it and that of old-fashioned cobble-stone cannot be but appreciated by all. The numerous deep gutters, which cross the streets of Washington in every block, cause constant wear and tear to both horse and vehicle; it is to be hoped that at no very distant day the drainage of the entire city will be underground, and that a more even surface for driving may be obtained. The streets of a city are public property, in which all citizens are more or less interested, and in point of necessity no other

public work can equal them ; why, then, is not more attention paid to paving and ornamenting them ? " The paving of streets is of early date, and is in fact necessary to any considerable degree of civilization and traffic. The Romans paved their streets in the same elaborate and solid manner in which they paved their highways." Portions of the ancient pavement of the streets of that city are in use at the present day, and that of Pompeii remains entire. In one of the pamphlets on the subject of pavements it is well remarked that, " considering the present development of the arts and sciences, there is no reason why the city streets should not be as agreeable for walking and pleasure riding as the roads in the Central Park ; and, at the same time, be so substantially paved as to meet all other requirements." In consideration of all these facts, and the great importance of having at least one good pavement traversing the city, the recommendation is made that the present cobble-stone pavement be removed, and that Pennsylvania avenue, west of the Capitol, be relaid with either one or the other of the improved pavements now coming into general use. If stone is to be used, the Belgian pavement possesses the greatest advantage ; but should one of wood be preferred, which is delightful, easy and not noisy, either the Nicholson, Ream, Fayette, or Stafford will prove to be as near perfection as it is possible to construct them. Then again the Asphaltum, the Concrete, and other similar pavements have their advantages in certain climates. Each one of those named has its advocates, and their relative merits, in both a practical and economical view, should be severely tested by competitive comparisons, made under the same and equal trials, both as regards climate and use. Pamphlets have been printed describing the benefits of each, and all can find an opportunity of testing them by actual experience. It is unnecessary to describe them in this report. The length of that part of the avenue which it is proposed to improve is over two and a half miles, and averaging in superficial measurement about one hundred and ninety-six thousand square yards. The cobble-stone pavement to be removed can be used on other and less frequented avenues.

Although the nation at large is deeply interested in the general improvement of the metropolis of the republic, and especially in the accomplishment of such a great and much needed work, still the property-holders along the avenue, as well as the citizens generally, are mostly benefited by it ; the expense of constructing an improved pavement might, therefore, be equitably proportioned between the municipal and general government. In addition to laying a good carriage way, other advantageous changes might be introduced for the beautifying of this avenue. The great widths of the avenues and streets in Washington offer many reasons, both in an ornamental and in an economical consideration of the matter, for imitating the taste and utility displayed in some of the larger cities of Europe. The " Unter-der-Linden," as described in the letter from General Meigs, previously referred to, " is a street of great celebrity in Berlin, and the people are still praising the electors who laid it out two hundred years ago. It is the principal street of a city of six hundred thousand inhabitants ; upon it are the royal palaces, those of most of the princes, the principal shops and hotels. It has a wide gravel walk in the centre, four rows of trees which give shade, wide sidewalks next the houses, and yet it is never encumbered. The central walk is sometimes filled in the evening by citizens and strangers enjoying the long summer twilight of this northern latitude, in which darkness does not come on until 10 p. m." The general gives a sketch of it, and hopes that Pennsylvania avenue may yet be arranged like it. The following are the dimensions of the different parts into which it is divided : First, foot-path, paved, adjoining houses, 15 feet ; second, carriage-way, paved, 33 feet ; third, line of stone posts, 3 feet ; fourth, row of trees ; fifth, carriage-way and equestrian-way, paved, 24 feet ; sixth, row of trees ; seventh, promenade, gravelled, 60 feet ; eighth, row of trees ; ninth, ride, gravelled, 24 feet ; tenth, row of trees ; eleventh, line of stone posts, 3 feet ; twelfth, carriage-way, paved, 33 feet ; thirteenth, foot-path, paved,

15 feet. These measurements give the width of the Unter-der-Linden at two hundred feet; Pennsylvania avenue is one hundred and sixty. The trees are not very large, having perished in the occupation of the city by hostile armies, and repeatedly renewed. If the thirty-three feet carriage-way happens to be full or obstructed, carriages take the twenty-four feet lines between the trees; but these twenty-four feet lines are ordinarily used only by equestrians and by parties who drag their wagons assisted by their dogs. One of them, that on the north side of the promenade, is gravelled, to be used as a summer road. This street is the resort for business and recreation of all Berlin, and of all strangers.

Is it not possible, in view of any contemplated improvement of Pennsylvania avenue, to adopt some of the plans proposed for ornamenting this prominent thoroughfare, and relieving it from its present unfinished appearance? Besides the improvements already suggested, there is another which should receive prompt action. From an examination which was made by my direction, Mr. Theo. B. Samo, engineer of the Washington aqueduct, reports that "between First street west and Fifteenth street west, on Pennsylvania avenue, there are fifteen fire-plugs; thirteen are similar in construction to those known as 'New York plugs;' each one is connected with a pipe, designated as the 'four-inch' or 'spring-pipe.' The other two are Philadelphia plugs, and are connected with the twelve-inch government mains." "The four-inch pipe is an old pipe nearly worn out, and is connected with the twelve-inch main only at Third street west and Thirteen-and-a-half street west. Not more than two plugs can be supplied by it at once, owing to its small diameter and the distance between its connections." It is respectfully suggested that the New York plugs, which are too small and have been constantly out of repair, should be replaced by those of more improved make and facilities; a new six-inch pipe should be laid in the place of the four-inch, and more frequent connections made with the twelve-inch main, in order that a sufficiency of water may be had in case of fires. At present, the steam engines have to obtain their supply from other streets. The cost of replacing the old plugs is comparatively small, considering the great amount of interest at stake, and an estimate is herewith submitted.

The relation of the general government to the city of Washington is very ably set forth in two very interesting pamphlets, the one addressed by the mayor of the city, in November, 1865, to the Hon. James Harlan, then Secretary of the Interior, and the other is a copy of the remarks which originally appeared in the editorial columns of the Union. The fifteenth section of an act of Congress approved the 15th day of May, 1820, "incorporating the inhabitants of the city of Washington," and the third section of an act approved May 5, 1864, amending the previous one, directs that "in all cases in which the streets, avenues, or alleys of the said city pass through or by any property of the United States, the Commissioner of Public Buildings shall pay to the duly authorized officer of the corporation the just proportion of the expense incurred in improving such avenue, street, or alley which said property bears to the whole cost thereof, to be ascertained in the same manner as the same is apportioned among the individual proprietors of the property improved thereby." Under the authority of these acts a large sum is due for the many improvements which have been completed, or are in course of construction, by order of the corporation; the late Commissioner of Public Buildings presented claims amounting to more than ninety thousand dollars, for which an appropriation has never been made; and only recently the mayor has officially informed me of the cost of additional works throughout the city; the latter have been personally inspected and approved. As it is contemplated to continue these improvements during the coming year, it is important that provision be made in advance to have ready in the hands of the officer in charge sufficient funds to pay the government proportionate part. Unless this is done, the advance of improvement is obstructed, and great suffering is sometimes caused by the inability to pay the



wages of the laborer. Instead of appropriating money for the immediate care of the indigent and poor, it would perhaps be better policy to inaugurate improvements so as to enable them to obtain work and gain their own support. In the hands of honest officers this plan will work well; public works should be, in more senses than one, public benefactors. Before concluding the brief suggestions offered in reference to the improvement of the different avenues, especial attention is called to Boundary street, towards which many of them lead; this street forms a connecting link between them, and at the same time skirts a greater part of the limits of the city. It is capable of great embellishment; by increasing the width and planting along it rows of shade trees, it will become a most delightful and much-frequented drive.

Many nuisances have been abated throughout the city by authority of the acts of Congress referred to, for the payment of which several public lots have been offered for sale, and some small appropriations are desired.

During the last winter an act passed to increase the supply of water in the Capitol building. For accomplishing this object in a proper manner the sum appropriated was not sufficient. By means, however, of certain funds at the disposal of the architect in charge of the extension, and which are applicable for the purpose, the work is progressing, and will be completed before the assembling of Congress. Owing to the great quantity of water daily used in the machine-shops of the navy yard, supplied only by the twelve-inch main, many complaints have been made of the great scarcity, during working hours, throughout the eastern section of the city. This can be easily remedied by connecting the twenty-inch main, now being laid in North B street for the benefit of the Capitol, with the twelve-inch main on First street east. An additional appropriation is asked for this much needed improvement. To meet the demands of the constantly increasing growth of the northern part of the city, another main will soon have to be brought into that section from the distributing reservoir near Drover's Rest. In his last report the mayor calls attention to the necessity of introducing an additional supply of water to meet this increased want.

In addition to the duties appertaining to the office of the late Commissioner of Public Buildings, the superintendence of the Washington aqueduct also devolved upon me. This most important work has for several years been under the general control of the Department of the Interior, Mr. Theodore B. Samo, the engineer in charge, having had for the last two years the immediate direction of all engineering operations. His very concise report for the year ending September 30 furnishes in detail the progress of the several supplemental works in course of construction, and also makes such recommendations as are necessary for the thorough completion of the entire aqueduct. It is very gratifying to have it in my power to report the very able and conscientious manner in which he has discharged his duties, and, after very careful inspections of the entire work, to coincide with him in the views entertained in relation to its progress, and to approve of the estimates submitted for the completion of many important parts upon which labor has been suspended for want of the necessary appropriations. Certain tracts of land are occupied by the government for aqueduct purposes, for which, in some cases, only nominal rents are paid; in others no rents have been paid at all, and claims are now being made by the owners to become either repossessed of their property, or to be paid for its use. As the United States must retain the few acres for the benefit of this national work, it is earnestly urged that authority be given to purchase them. But a few thousand dollars is needed to meet all claims and to purchase the land. The great importance of introducing into the capital an unlimited supply of pure and wholesome water cannot be overestimated. The large amount of valuable public property concentrated in the city, amounting in the aggregate to millions of dollars; the immense accumulation of important government

archives, many of them stored away in buildings which are not fire-proof; the large number of public buildings, will certainly show the necessity for the Washington aqueduct, and that no expense should be spared in completing it. The water thus supplied has become a great motive power at the different government works throughout the city, and should the capital of the nation become what every enlightened citizen should desire to see it, a still larger demand will be made for both useful and ornamental purposes. As a member of a board of officers to select a site and prepare plans and estimates for a new War Department building, it was ascertained that this department alone occupied a great many buildings, and, with the exception of one, all are unsafe and not constructed for protection against fire; it will require a very large fire-proof building to preserve free from accident its valuable archives. In the safety and preservation of these almost every family in the land is interested.

The repairs of Fort Foote, on the Potomac, which are progressing under the immediate direction of Mr. S. T. Abert, civil engineer, were also placed under my temporary superintendence. One of the most charitable and disinterested appropriations which the officer in charge of public buildings is called upon to disburse is that for the care of such transient paupers as are in need of medical advice and treatment; a home is also furnished, where proper care and nursing, and suitable nourishment, can be given at all times. Arrangements have been made with Providence Hospital to admit a limited number of patients; although at times the quota is exceeded, still they are always kindly received and the best of attention given them. To know and to appreciate that such is the case it needs only to be mentioned that the hospital is under the efficient control of the Sisters of Charity. Before concluding this already extended report it is respectfully recommended that additional clerical assistance be allowed in this office, and that the number of assistants and laborers under the public gardener be increased; the former should be excellent accountants, and the latter men who thoroughly understand the care and beautifying of the public squares.

As an inducement to obtain experienced and reliable persons compensation commensurate with their services should be afforded them; the present pay as authorized by law is not deemed sufficient, and it is earnestly urged that an increase may be granted. Major James Nokes, the public gardener, and his assistants and laborers, have faithfully performed the labors required of them in the care of the different squares and reservations, the appearance of which will also testify to the skill displayed by them. The assistants in the different offices connected with public buildings, grounds, and walks all deserve great credit for the manner in which they have severally performed their duties.

Most especially to my general superintendent, Mr. B. F. Burns, much praise is due for the efficient, faithful, and competent manner in which he has at all times carried out my instructions.

I am, general, very respectfully, your obedient servant,

N. MICHLER,

*Major of Engineers, Brevet Brig. Gen. U. S. A., in charge.*

Major General A. A. HUMPHREYS,

*Chief of the Corps of Engineers, U. S. A.*

REPORT IN RELATION TO "PUBLIC PARK AND SITE OF PRESIDENTIAL MANSION," APPENDED TO ANNUAL REPORT DATED OCTOBER 1, 1867, OF BREVET BRIGADIER GENERAL N. MICHLER, IN CHARGE OF PUBLIC BUILDINGS, GROUNDS, AND WORKS, WITH ACCOMPANYING SKETCHES.

*Communication of N. Michler, major of engineers, to the chairman of the Committee on Public Buildings and Grounds, relative to a suitable site for a public park and presidential mansion, submitted to accompany the bill (S. 549) for the establishment and maintenance of a public park in the District of Columbia. February 13.*

WASHINGTON CITY, January 29, 1867.

SIR: In compliance with the contents of your letters of the 24th and 26th of July, 1866, addressed to the honorable Secretary of War, I was detailed by the Chief of Engineers, with the consent of the General-in-chief, to carry out the views of the committee in regard to the special duty assigned me. In the letters referred to you requested that an engineer officer be detailed to make the necessary preliminary surveys and maps of certain tracts of land adjoining or near this city, for the purposes of a public park, and also a suitable site for a presidential mansion, and which, in the language of the Senate resolution of the 18th of the same month, "shall combine convenience of access and healthfulness, good water, and capability of adornment;" in addition to this to ascertain, if practicable, the price of said lands.

After a careful examination of the many beautiful localities to be found in the vicinity of the capital, and having caused an accurate and detailed survey of its environs to be made, I now have the honor to submit for your consideration the conclusions to which I have arrived. In connection with this report two preliminary maps have been prepared, which will show more plainly than words can express the required information and the respective advantages of the different sections. The Senate resolution would seem to imply that one and the same tract of land should be designated for a site for grounds for a presidential mansion as well as for a public park; but as it is not definitely so stated, it has been judged best by me to separate the subjects. Should such not be the intention of your honorable committee it will be easy to combine the two, where so many splendid situations present themselves from which to make a selection. As it is designed to build a home for the President to which he can retire from the active cares and business of his high office, and where he can secure that ease, comfort, and seclusion so necessary to a statesman, it would seem best to locate it away from the constant turmoil of a city life, at such a distance where his privacy cannot easily be intruded upon, and still sufficiently accessible for all practical purposes.

In the first place let me consider the subject of a public park. Where so much has been written on so interesting a feature to any large city as that of a park, and where the necessity of public grounds, either for the sake of healthful recreation and exercise for all classes of society, or for the gratification of their tastes, whether for pleasure or curiosity, has become apparent to every enlightened community, it would seem to be unnecessary for me to dilate further upon the matter, to say nothing of the natural or artificial beauties which adorn a park, and so cultivate an appreciative and refined taste in those who seek its shades for the purpose of breathing the free air of Heaven and admiring nature. It certainly is the most economical and practical means of providing all, old and young, rich and poor, with that greatest of all needs, healthy exercise in the open country.

To accomplish these ends there should be a spaciousness in the extent of the

grounds, not merely presenting the appearance of a large domain, but in reality possessing many miles of drives and rides and walks, all independent of each other, and either open or protected so as to be suitable for the different seasons. There should be a variety of scenery, a happy combination of the beautiful and picturesque—the smooth plateau and the gently undulating glade vying with the ruggedness of the rocky ravine and the fertile valley, the thickly mantled primeval forest contrasting with the green lawn, grand old trees with flowering shrubs. Wild, bold, rapid streams, coursing their way along the entire length and breadth of such a scene would not only lend enchantment to the view, but add to the capabilities of adornment. While nature lavishly offers a succession of falls, cascades, and rapids to greet the eye, as the waters dash through some romantic dale, the hand of art can be used to transform them into ponds and lakes as they gently glide through the more peaceful valleys, thereby rendering them the means of pleasure and recreation for boating or skating. What so useful as an abundance of water, or so ornamental when converted into fountains and jets to cool the heated atmosphere? It furnishes, also, opportunities for the engineer and artist to display their taste in constructing ornamental and rustic bridges to span the stream.

An attempt has been made in a few words to describe the purposes and beauties of a public park. In no place has nature been more bountiful of her charms than in the vicinity of this city, and all can be found so near and accessible; the valley of the Rock creek and its tributaries, the Broad and Piney branches and the several minor rivulets, with the adjoining hills overlooking these beautiful streams, present the capital of the nation advantages not to be lightly disregarded in providing a park worthy a great people. All the elements which constitute a public resort of the kind can be found in this wild and romantic tract of country. With its charming drives and walks, its hills and dales, its pleasant valleys and deep ravines, its primeval forests and cultivated fields, its running waters, its rocks clothed with rich fern and mosses, its repose and tranquillity, its light and shade, its ever-varying shrubbery, its beautiful and extensive views, the locality is already possessed of all the features necessary for the object in view. There you can find nature diversified in almost every hue and form, needing but the taste of the artist and the skill of the engineer to enhance its beauty and usefulness; gentle pruning, and removing what may be distasteful, improving the roads and paths, and the construction of new ones, and increasing the already large growth of trees and shrubs, deciduous and evergreen, by adding to them those of other climes and countries. A list of the various trees and shrubs, and vines and creepers, to be found already flourishing in the region described, and also the nature of the soil, will be appended to this report. A glance at the map will show the topographical features of the country, and its accessibility to both Washington and Georgetown.

The valley of Rock creek occupies a central position to both, as it lies between the Tennallytown road on the west, one of the most prominent thoroughfares leading out of the one city, and the Fourteenth street road and Seventh street turnpike on the east, two of the finest communications running in a northerly direction from the other. From these main highways many branches cross the valleys or follow along the banks of the stream; these transverse roads already form beautiful drives. Rock creek winds along for more than four miles through the centre of the proposed grounds, receiving at convenient points the waters of the Broad and Piney branches, and several smaller tributaries. For a short distance it courses through a narrow but beautiful valley, then wildly dashes for a mile over a succession of falls and rapids, with a descent of some eighty feet, the banks on both sides being bold, rocky, and picturesque; then passes again through narrow valleys or between high, bluff banks. At many points the creek is capable of being dammed, thus forming a series of lakes and ponds for useful and ornamental purposes. The many deep ravines setting in towards



it can furnish romantic walks and quiet retreats for the pedestrian. The larger part of the ground is thickly wooded, and capable of great adornment. Here we find the several varieties of oak, the beech, the locust, the mulberry, the hickory, the sassafras, the persimmon, the dogwood, the pine, with a great many shrubs, vines, and creepers, growing, climbing, and trailing throughout the woods. Beautiful vistas, artistically arranged, can be cut through them, exhibiting distant points of landscape, while charming promenades can invite the wanderer to seek cooling shades. Nature has been so rich in her vegetable creation that the plan of transplanting trees of large growth, which has been adopted in most of the modern parks, will be unnecessary. There are some few country seats, such as Blagden's, Pearce's, and Walbridge's, which have been highly cultivated; should it be found desirable to erect the presidential mansion within the enclosure of the park, the first mentioned site possesses many advantages, both ornamental and valuable. Here and there some prominent point offers commanding views of the surrounding country, where observatories can be located, conservatories built for exotic plants, and geometrical flower-gardens planted. Back from the stream some level plateaus extend, which can be appropriately employed for zoological and botanical gardens, grounds for play and parade, and many other useful purposes.

The map shows the most desirable localities, the surveys having been made in great detail. The lay of the land is such that it admits of thorough drainage, and the nature of the soil offers all the facilities for building good roads; the granite and limestone rocks which are found outcropping at different points will furnish the materials for their superstructure. In fact, every facility is offered for laying out and constructing a grand national park.

The questions now arise as to what should be the extent of the proposed work, and the probable price of the land. As it should be one worthy the capital of the nation, and as the ground can be secured at a reasonable price before being occupied by costly suburban villas, it is respectfully recommended to the honorable committee to purchase at once a sufficient number of acres bordering on Rock creek to anticipate the future growth of the city and its increased population. With the view of retaining as much of the picturesque scenery along the stream, and of also embracing the sites of some few of the forts on the north constructed for defence of the city, which have become historical, and from the parapets of which extensive views can be had, I have marked on the maps such lines as may be satisfactorily taken as approximate bounds of the park. In case my recommendations should be considered too extravagant, I have caused a second series of lines to be drawn for grounds of more moderate dimensions. The first tract would contain about two thousand five hundred and forty acres, more or less; and the second, one thousand eight hundred, more or less. As there is so much difference of opinion as to the price of the land, the quality and improvements varying so much, it is a difficult matter to offer anything more than an approximate appraisalment. As the right of eminent domain empowers the government to take property, and as such power is the necessary incident to sovereignty, the question would finally have to be settled by a commission appointed by some competent court. The price ranges from \$50 to \$1,000 per acre; a mean of \$200 should amply cover the entire cost. It will be noticed that the southern limits, as drawn, of the proposed park, do not approach more closely than necessary the city limits, leaving out where possible such sites as would greatly enhance the cost. Avenues leading along Rock creek to the southern limits of the park should be opened. According to the above figures the larger tract would amount to \$508,000, and the smaller one to \$360,000. As the work of constructing a park will consume many years, no longer delay than is absolutely necessary should be consumed in the preliminary arrangements for the passage of the necessary laws and the purchase of the lands.

The dimensions of the most celebrated European parks are as follows :

*London*.—All parks in and near London, including gardens, squares, and parade grounds, 6,000 acres. Hyde Park, 380 acres; Regent's Park, 372 acres; Windsor Little Park, 300 acres; Kensington, 227 acres; Windsor Great Park, 3,500 acres; Richmond Park, 2,250 acres.

*Dublin*.—Phoenix Park, about 2,000 acres.

Garden at Versailles, 3,000 acres; Bois de Boulogne, 2,158 acres; Munich, Englischer Garten, about 500 acres; Vienna, Prater, 1,500 acres; Birkenhead Park, near Liverpool, 180 acres.

The Central Park of New York, the most important work of the kind undertaken in America, is over two and a half miles in length by one-half mile in breadth, and contains over eight hundred and forty acres. There are about nine and a half miles of drives, five and a half miles of bridle road, and some twenty-five miles of walks. The annual sum provided for the expense of maintaining it, to wit, \$150,000, is reported to be insufficient. The number of visitors continue to increase with each year; in 1865, 7,593,139 persons entered. Hunting Course Park, near Philadelphia, and the Druid Park, near Baltimore, have also been constructed. The establishment of parks is exciting great attention throughout the land, and adds vastly to the enjoyment of the people.

I would now call the attention of your honorable committee to the remaining subject of this report—the selection of a site for a presidential mansion. In the memoranda submitted to the Secretary of War by letter of July 26, 1866, you requested “that the ground known as Meridian Hill,” and “the estate of the late Washington Berry,” should be particularly examined, as they are thought to contain all the requisite advantages for such a site; “also such other localities as may, in the judgment of the engineer,” present eligible positions for such a purpose. In compliance with your wish I made special reconnaissances and surveys of the above-named places, as well as some others, which offer great inducements, and will now discuss each separately.

I. *Meridian Hill*—(Colonel Messmore's estate.)—This site is located due north from the present White House, on the first range of hills bounding the limits of the city of Washington. It is of easy access, several avenues and streets leading in that direction. On the east it adjoins the lands of Columbia College, and on the west those of Mr. Little. The number of acres contained in this tract is one hundred and twenty, which added to that of Mr. Little's thirty-eight acres gives a total of one hundred and fifty-eight. The latter offered to sell to the government at about six cents a square foot, or \$2,613 per acre. On both these estates are eligible building sites; the view towards the south, overlooking the city and the valley of the Potomac, being particularly fine. At one time some large forest trees added beauty to the scene, but most of them were destroyed during the war. There are no improvements, the old mansion-house having been destroyed by fire, and the walls are alone standing. North of the site the land is nearly level, only slightly undulating. Although possessed of considerable advantages, there are several objections to this selection, in connection with the object in view. Lying just above the plateau of the city, and not screened by any belt of timber, it is exposed to the miasmatic influences rising from the marshes of the Potomac. Again, it is too near the city to afford any retirement and repose for the Chief Magistrate. Already the street railroads approach, and numerous houses are being built on all sides of this site.

II. *Metropolis View*—(Homestead of the late Washington Berry.)—This estate lies northeast of the Capitol, between the old Bladensburg road and Lincoln avenue, the latter a continuation of North Capitol street. It is distant from the Capitol about two and a half miles, and from the White House about three miles. It contains some three hundred and fifty acres, valued by the trustees at \$500 an acre, with the improvements, including a very fine spring; the whole is offered at \$200,000. To the east of it lies Brentwood, the fine estate of Mrs.

Pearson, and to the west Glenwood Cemetery, and Harewood, the beautiful grounds of Mr. Corcoran. In front spreads out Eckington, so many years the homestead of the late Mr. Gales, which contains 130 acres; the price of this land is placed at \$1,000 per acre, with \$25,000 additional for improvements. Metropolis View is beautifully situated, having a high and commanding position; it is partially covered with groves of fine old trees, deciduous and evergreens, and possessed of an abundance of timber. A fine spring rises in the place, and two small streams, tributaries of the Tiber, course through it. In nearly every direction the eye meets with charming landscape scenes, and it overlooks the Capitol and the broad valley of the Potomac. This locality possesses many attractions, and is susceptible of great improvement. It is easy of access by some of the finest avenues and streets leading out of the city, and is at a very convenient distance from the most prominent public buildings.

Eckington is a delightful place, but it is not sufficiently high to afford any extensive views. It should, however, be purchased in addition to the Berry estate, should Metropolis View be selected as the site. The two tracts of land united would furnish ample grounds to surround the mansion, and also open a fine park to connect with the city on the direct line with the Capitol. The sum total of the valuations of both estates amounts to \$355,000. In regard to the healthfulness of this locality, the opinions of those with whom I have consulted differ very materially. Some think that the miasma carried up the valley of the Tiber from the Eastern branch is very deleterious to health, while others, who have long inhabited these old homesteads, pronounce them to be perfectly salubrious.

III. *Harewood*—(Mr. Corcoran's estate.)—Among the many delightful drives around the city of Washington none can compare with those to be found within the enclosures of this delightful retreat. The grounds are most artistically arranged, and no expense has been spared in adorning them by all the appliances at the command of taste and wealth.

The grounds are naturally beautiful and undulating, and all that skill can accomplish has been applied to render them most charming and picturesque. In addition to the natural growth of vegetation, many trees and plants of other nations and climes have been introduced to impart their luxuriance to the scene. The estate covers some two hundred acres, but as you follow the gentle windings of the drives and walks, the imagination is led to believe it to be of much greater extent. Good roads lead to it from the city, making it perfectly accessible. A fine spring furnishes a plentiful supply of water, and in point of health it is all that can be desired. This spot, originally selected by the proprietor upon which to erect a princely mansion, is one of the most delightful situations among the many fine ones in the environs of Washington; it would be a most eligible site for a presidential mansion.

IV. *The homestead of Mr. Moncure Robinson*.—This estate is now occupied by a brother of the proprietor, the latter residing in the city of Philadelphia. It lies adjoining the lands belonging to the United States Military Asylum; the road which leads out of the city on the prolongation of North Capitol street and passes near the Home for the old soldiers, almost divides the place into equal parts. There are about seventy acres in all, which the owner proposes to sell at \$1,000 per acre, without the improvements; these he values at \$30,000. The mansion occupies one of the most elevated positions in the neighborhood of Washington. An extensive panorama of the surrounding country lies before the beholder; from every point of the compass the eye can dwell upon magnificent landscapes extending far into Maryland and Virginia, and combining all that is beautiful and picturesque. In one direction the gaze rests for miles on the waters of the majestic Potomac, and in another there are mountains and hills mantled with forests, and plains and valleys highly cultivated. The place con-

tains a large portion of heavy timber, and is so situated as to offer numerous advantages for improvement. From its great height it will be far above all malarious influences. There are fine springs in the neighborhood, which furnish an abundance of water for useful and ornamental purposes. The locality is convenient to both cities. Through Washington several avenues and streets lead towards the road above referred to as connecting with North Capitol street; by this drive a straight-line communication can be had with the Capitol, the distance between the two being less than four miles. By the avenues and streets connecting with the Fourteenth street road and Seventh street turnpike, thence by Rock Creek Church road, a very direct drive of a little over four miles can be had with the White House and the public buildings adjoining it. From Georgetown almost an air-line can be had *via* Boundary street, Taylor's lane, and Rock Creek Church road, distance of about four miles.

Directly in front, or south of Mr. Robinson's beautiful locality, lie the very pretty grounds of Mrs. R. S. Wood, consisting of forty acres. The two must be considered inseparable should the Robinson site be selected for a presidential mansion. They are valued at about \$1,000 per acre, not including the improvements. The two places can probably be purchased for \$150,000. Mrs. Wood's tract joins Harewood on the south, and on the west that of the Military Asylum. The lands of the latter do not belong to the government, but are in trust for the old soldiers, and contain some two hundred and fifty-eight acres. A reference to the map will show the honorable committee the peculiarly attractive features, both of position and general convenience of access, offered by the locality described above, containing in all about one hundred and fourteen acres, sufficient for the necessary purposes of embellishment and utility; and lying contiguous to the already ornamented grounds of Harewood and the Military Asylum, enjoying all the charms and advantages of those delightful places, it would be difficult indeed to find a spot more admirably adapted as a retired, pleasant home for the President of the United States.

A table of distances from the Capitol and Executive Mansion to prominent points of interest is also added for the information of the committee.

*Table of distances.*

	From Capitol.	From Executive Mansion.
	<i>Miles.</i>	<i>Miles.</i>
To Mrs. Hobbie's, (southern limit of proposed park) .....	3 $\frac{1}{2}$	2
Residences of General Walbridge and Mr. Brown .....	3 $\frac{1}{2}$	3
Pierce's mill .....	4 $\frac{1}{2}$	4
Residence of Mr. Blagden .....	4 $\frac{1}{2}$	3 $\frac{1}{2}$
Fort Stevens, (northern limit of proposed park) .....	5 $\frac{1}{2}$	5 $\frac{1}{2}$
Meridian Hill .....	3	1 $\frac{1}{2}$
Metropolis View .....	2 $\frac{1}{2}$	3
Residence of Mr. Robinson .....	3 $\frac{1}{2}$	4
Residence of Mrs. Wood .....	3 $\frac{1}{2}$	3 $\frac{1}{2}$
Entrance to Harewood .....	3	3 $\frac{1}{2}$
Entrance to Old Soldiers' Home .....	4	3 $\frac{1}{2}$

In concluding this report I would respectfully suggest to your honorable committee the necessity of commencing the construction of the national park as soon as practicable. It is a grand and beautiful undertaking, and should be prosecuted with the greatest energy. A sufficient appropriation for enclosing the grounds purchased, for improving and keeping in repair the drives and walks



already constructed, and for the laying out of others, should be made. For this purpose one hundred thousand dollars would be sufficient for present expenditures.

I am, sir, very respectfully, your obedient servant,

N. MICHLER,

*Major of Engineers, Brevet Brigadier General U. S. A.*

Hon. B. GRATZ BROWN,

*Chairman of the Committee on Public Buildings  
and Grounds, United States Senate.*

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*Remarks on the vegetation of the District of Columbia, by Dr. Arthur Schott of Georgetown; appended to the report of General N. Michler.*

In order to specify the vegetable growth of the District of Columbia, in relation to the topographical features of the same, the subjoined lists of plants are suggestively proposed, as they principally tend to give shape to the general appearance of the landscape. As the geological aspect of the area in question presents considerable variety in its details, it is thought proper to bring the numerous floral types, not less varied in size, shape, and individual development, under separate heads, corresponding to their particular habits. For the sake of facilitating their survey, the various species are here arranged in the following order, commencing with the trees, larger and smaller, and these followed by shrubs, vines, creepers, and the undergrowth of herbs and weeds. The same disposition is observed in mentioning their topographical distribution, commencing on the hill tops, and then gradually descending to the low grounds, river banks, marshes, and bogs. As to the selection of the species hereafter named, there is no hesitation in giving the trees, shrubbery, and vines pretty much in full, as all these forms by their size make themselves more prominent, while with plants, herbs, and weeds, either their rich floral, or more foliaceous development, or clustering mode of growth, invite special notice. Commencing with the more elevated portions of the District, particularly towards its western limits, the following are to be found:

White oak: Large, lofty; rich woods.

Post oak: Rough or post white oak; less tall; sandy soil.

Red oak: Good sized; rocky woods.

American beech: Large and very ornamental; rich woods on hill slopes bordering on water courses.

Hop hornbeam: Large and handsome; rich woods.

Mockernut hickory: Large and graceful; rich woods.

Shell-bark or shag-bark hickory: Tall, handsome; rich woods.

Thick shell-bark hickory: Good size, with the former.

Poplar tulip tree: One of the loftiest forms; rich woods.

Honey locust: Good sized, very ornamental; rich woods.

Spanish oak: Large or small; rich woods.

Quercitron or black oak: Large tree; dry woods.

Common persimmon: Middle sized, but handsome; sporadically all through.

Sassafras: Fifteen to fifty feet high; rich woods.

Red mulberry: Middle sized; rich woods.

Red bird: Small tree; hill slopes.

Tupelo, black or sour gum tree: Middle sized; hill-sides.

Locust tree: Tall, ornamental; borders of woods, hill and road sides.

Staghorn sumac: Twenty to thirty feet high; open hill-sides.

Smooth sumac: Of lesser size, on rocky, barren soil.

Box elder: Small, handsome tree; hill-sides; borders of thickets descending to river banks.

Flowering dogwood: Small tree; in rocky places.

- Jersey or scrub pine: Fifteen to twenty-five feet high; on barren and sterile hills.
- Red cedar: Fifteen to thirty feet high; dry, rocky, or sterile hill-sides.
- Japan paper mulberry: Small tree or shrub; open hill and road-side; pretty well naturalized.
- Panicled dogwood: Thickets and hill-sides; shrub four to eight feet high.
- Black haw, shoe-leaved arrow-wood: Treelike shrub; shady hill-sides.
- Maple-leaved arrow-wood: Three to five feet high; rocky woods.
- Spice bush: Five to ten feet high; damp woods.
- Poison oak; poison ivy: Climbing or trailing everywhere.
- Bladdernut: Ten feet high; moist thickets.
- Burning bush: Sporadically everywhere through the woods; tall and upright shrub.
- Summer grape: Thickets.
- Virginia creeper: One of the chinquopin; six to twenty feet high; sandy woods; boldest climbers; in the woods generally.
- Maryland andromeda: Sandy woods; very ornamental.
- Deerberry, squaw huckleberry: Dry woods and hill-sides; neat and graceful shrub.
- Common swamp blueberry: Four to five feet high; moist, shady places and copses.
- Purple Pinxter flower: All through the woods.
- Indian hemp: Three to five feet high; valleys and hill-sides.
- Woodbine: Trailing; rocky woods.
- Trumpet honeysuckle: Woodlands.
- Of the undergrowth, herbage, and weeds, the following may be mentioned:
- Creeping wintergreen: Damp woods, in the shade of evergreens.
- Ground laurels: Sandy woods and rocky soil.
- Common greenbrier: Moist thickets.
- Halbert-leaved greenbrier: Thickets in sterile or sandy soil.
- Bouncing bet, common soapwort: Thoroughly naturalized, in waste places, and rugged, open hill-sides.
- Wild pink: Rocky or gravelly places.
- Purslane: Sunny sites in rocky or sandy soil.
- Spring beauty: Moist, open woods.
- Velvet-leaf: Escaped from gardens, naturalized in waste places.
- High mallow: Naturalized like the former; waste places.
- Wild crane's bill: Open woods.
- Wood sorrel: Three species; rocky places.
- Wax-work, climbing bittersweet: Along streams and thickets.
- New Jersey tea: Undershrub; dry woodlands.
- Milkwort: Woods, in light soil; besides three or four more species of the genus.
- Meadowsweet: Two or three species, among them *F. tomentosa*, *L. hardi*-track, steeplebush; low grounds and meadows.
- Indian physic: Also called bowman's root; rich woods.
- Purple flowering raspberry: Ornamental; hill-sides and rocky banks.
- High blackberry: Border of thickets.
- Running swamp blackberry: Wet woods.
- Sand blackberry: Sandy woods.
- Hawthorn; whitethorn: Dry rocky banks.
- Shadbush; serviceberry: Hillsides and river banks.
- Deer grass; meadow beauty: Sandy swamps.
- Loosestrife: Wet meadows.
- Common evening primrose: Everywhere.
- River sundrops: River banks and swamps.
- False loosestrife; seedbox: Swamps.
- Yellow passion flower: Damp thickets.

Early saxifrage : Exposed rocks.

Bishop's cap : Hillsides, in rich soil.

Panicle cornel, four feet to eight feet high : Thickets and hillsides.

Bluets ; delicate little herb : Grassy banks and commons.

Of the very large family of compositæ, especially fully represented in North America, the District has its correspondingly good share. The species are distributed over every kind of locality, but to mention them all separately would lead too far ; it is therefore preferred to present here an extract of such genera, which show the largest and most showy species. They are as follows :

Ironweed, button snakeroot, thoroughwort, mistflower, coltsfoot, starwort, double-blistered starwort, golden rod, golden aster, groundseltre, elecampane, rosin plant, oxeye, coneflower, sunflower, tickseed, burr marigold, crownbeard, cudweed, everlasting, Indian plantain, plumed thistle, hawkbit, hawkweed, rattlesnake root, &c., &c.

Cardinal flower : Low grounds.

Great lobelia : In similar localities.

False wintergreen : Damp sandy woods.

Small pyrola : Open woods.

One-sided pyrola : Rich woods.

Pipsissewa : Dry woods.

American cowslip : Rich soil.

Common mullein : Fields and roadsides.

Turtlehead ; snakehead : Damp thickets.

• Bushy false foxglove : Dry copses.

Painted cup : Low grounds.

Of the mint family well represented in the District the following genera count the more showy forms ; Horsebalm, dittany, horsemint, sage, catmint, mountain mint, scullcap, false dragonhead, germander.

Of the borage family, the following genera are more prominently represented : Vipers bugloss, false cromwell, smooth lungwort.

Of the waterleaf family : Waterleaf.

Of the polemonium family : Phlox, several showy species.

Of the convolvulus family : Bracted bindweed, morning glory.

Of the nightshade family : Jamestown weed, thorn apple, nightshade.

Of the gentian family : American centaury, gentian, American columbo.

Of the milkweed family : Milkweed, gonolobus.

Of the birthwort family : Wild ginger.

The class of the endogens is equally well represented by members of the following genera : Adam and Eve, or putty-root, false orchis, Arethusa, ladies' tresses, rattlesnake plantain, lady's slipper, star grass, blue-eyed grass, yam, three-leaved nightshade, Solomon's seal, lily, dog's-tooth violet, bellwort, devil's bit. Of the remaining genera of this class, the following ought to be mentioned : Dayflower, spiderwort ; besides a very extensive list of grasses and sedges which close the series of endogens.

Especially noteworthy for the wood flora are of the cryptogams, the fern, and mosses. The former, of course, appear more prominent on account of size and higher development. The following genera are characteristics for the District : Polypody, brake, bracken, maiden hair, Woodwardia, spleenwort, Dicksonia, bladder fern, woodsia, wood fern, shield fern, sensitive fern, flowering fern, moonwort.

Of the clubmoss family, (lycopodium, the ground pine,) lycopodium dendroideum, Micht., and L. complanatum, L., are the more conspicuous.

The list of herbs and undergrowth plants in general has been given here more extensively on account of the broader distribution of the genera and species, which descend almost equally from the hill-sides over clearings and open flats, down to the water's edge. It now remains to name such species of trees, shrubs, and suffrutescent forms, not mentioned heretofore on account of their being more

exclusively bound to the vicinity of water-courses, swamps, and bogs. The following deserve particular notice :

Swamp white oak : Pretty large ; low, moist woods.

Swamp chestnut oak : Low woods and river banks ; a large tree.

Willow oak : 30 to 50 feet high ; sandy, low woods.

Black jack or barren oak : 8 to 20 feet high, dry, sandy barrens.

Sweet gum : Moist woods ; large and beautiful tree.

Hornbeam, ironwood : 10 to 20 feet high ; along streams.

River or red birch : Large tree ; gracefully overhanging river banks.

Smooth alder : 6 to 12 feet high ; bordering water-courses.

Silk-leaved willow : Shrub 4 to 10 feet high ; sandy river banks.

Brittle willow : Tall and handsome.

Poplar, aspen : 20 to 50 feet high.

Large toothed aspen : Large tree.

Planetree, buttonwood ; also called sycamore : Large tree, alluvial river banks.

Sweet bay, small or laurel magnolia : 4 to 15 feet high ; swamps.

North American papaw : Small tree ; banks of streams in rich soil.

Swamp rose mallow : 5 to 6 feet high ; borders of marshes ; flowers very showy.

Halbert-leaved mallow : River banks, swamps.

Maple, white or silver maple ; Fine ornamental tree ; river banks.

Red or swamp maple : Small tree ; swamps and wet woods.

Strawberry bush : Wet places.

Winter or frost grape : Thickets and river banks.

Wild yellow plum : Bush or tree 8 to 15 feet high ; river banks.

Chokecherry : Tall, overhanging shrub ; river banks.

Swamp rose : Low grounds.

Witch hazel : Damp woods.

Common elder : Border of thickets and low grounds.

Buttonbush : Wet places ; forming thickets.

Clammy or white honeysuckle : Swamps and boggy places.

Mountain laurel ; also called cabin bush : Rocky hills, damp soil and banks of rivers.

Trumpet bower : Bold climber, with very showy flowers.

Leather or moose wood : Damp, rich wood swamps ; 2 to 7 feet high.

American or white elm : Large ornamental tree ; moist woods and alluvial river banks.

Fringe tree : Low tree or shrub, very ornamental ; river banks.

Red ash : Woods along streams ; large tree.

Most of the herbs and undergrowth plants of the lower sections of the District, such as swamps and overflows, will be found already embodied in the respective list above. Truly aquatic forms, though some of them peculiar to this locality, are not deemed necessary to be considered here.

As a general remark it may be stated that the western portion of the District, forming an outlier of the eastern slope of the Alleghanies, shows over its hill-sides and valleys a far greater diversity of species than east, on the other hand, in the flats towards the Eastern Branch ; these exhibit a tiring monotony on account of the more or less clustering habits of its vegetable forms.

In conclusion, attention may be drawn to the sudden changes in the qualities of soil, irrespective of the section it may belong to. For example, there can be observed on the top of a hill an excessive sterility, when on its slope, upon a horizon only a few yards below, the richest piece of ground imaginable may be encountered. The same occurs upon the flats and alluvions of the middle and eastern section. In most cases this will be found to be the result of the deteriorating agency of some kind of denudation, wherever the original vegetable cover of the soil had been impaired either by nature or man. Through the course of civilization in the immediate vicinity of a large city, the deteriorating causes by the hand of man are going on almost incessantly. It is therefore

that we here find very extensive patches of land which, after having been cleared of their original cover, are deprived of every particle of vegetable soil ; hence the multitude of desolate hillslopes and flats, alternating upon the same level with pieces of the richest forest lands imaginable. This observation may serve as subject for reflection in regard to inconsiderate clearing, and to the robbing of nature's treasures by a few seasons of speculative cultivation of the soil without ever making some just returns.

There is no doubt the surface crust of this District has been, previous to its disintegration, rich and genial. This is sufficiently proved by the above list of vegetable forms. After having been divested of its natural protection, denuding agencies, both natural and artificial, thoroughly impoverished it in many instances.

WASHINGTON, D. C., *January 16, 1867.*

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*A public park for the capital.*

The following is the speech of Hon. B. Gratz Brown, of Missouri, delivered in the Senate on the 20th ultimo, on the bill for the establishment and maintenance of a public park in the District of Columbia :

MR. BROWN. Mr. President, the bill which I have just called up is one to establish a public park in the vicinity of Washington city. It is reported from the committee as a substitute for a similar bill offered by myself at an early stage of the session, and differs from that chiefly in the modes designated for acquiring ownership of the designated grounds. The locality is the same, the general area contemplated the same, and the purpose of procuring and ornamenting such a public place of resort, at the expense of the United States and not of the corporations of this District, is the same.

It will be remembered, Mr. President, that at the last session of Congress, when this matter was first mooted, objection was taken to the lack of definite information on which to proceed in making selection of grounds ; and to obviate that difficulty as far as possible, a resolution was referred to the Committee on Public Buildings and Grounds, of which I have the honor to be chairman, instructing them to have surveys made of various eligible sites around the city of Washington adapted to the purposes of a public park. In pursuance of that resolution of the Senate, an application was made to the Secretary of War, which secured a detail of engineer officers, who, during the recess of Congress, proceeded to make the surveys desired. I hold in my hand an elaborate map, containing the result of those surveys, accompanied by an admirable report from the officer in charge of the work, which report has been printed and laid on our tables. I have before me also a minor plat, illustrative of the surveys, which it may be well for senators to scrutinize. It was found, on making these examinations, that there was but one location in the neighborhood of this city eminently adapted to the purposes of a public park. I suppose all members of the Senate are familiar enough with the environs of the city to know the beautiful and romantic valleys of Rock creek. The character of the ground around and adjacent to that stream is exactly suited to the purposes we desire. It has running water ; it has rugged hills ; it has picturesque scenery ; it has abundance of varied forest timber ; it has a native undergrowth seething with beauty. It has the tangled vine and the clustering wild flower, and the quiet mosses, gray with age, and indeed a thousand imprints of native adornment that no hand of art could ever equal in its most imitative mood. Moreover, with so much of attractiveness in its present uncultured state, it has likewise every capacity for adornment and development, and can be made, with less expense than almost any spot of equal area I have ever seen within reach of a great city, one of the most beautiful resorts in the world. The amount of ground which was surveyed embraced twenty-seven hundred acres. It will not be necessary,

however, to take in all of that ground in order to secure what is desired for the purposes of a park, in the shape of drives, alcoves, recesses, and places capable of adornment. Fortunately the amount to be embraced is almost entirely optional, as the situation is such that large additions may be made without abating much the extent of the drives or the beautiful diversity of views.

The committee, after having made a very careful examination of the plans and surveys submitted by Brigadier General Michler—and, by the way, I must be permitted here to compliment him in the highest terms for the zeal he has manifested in this work and the admirable manner of its execution—the committee, I say, finding that the number of owners was so great as to preclude any joint offer for sale to the United States, thought it best to establish a commission authorized to negotiate in behalf of the government, and subjecting their action to the approval of the next Congress. It was believed that if we were to order a condemnation of the ground there might be improper combinations to secure a verdict, and the interest of the government might be sacrificed in the premises. It was believed, furthermore, that if an opportunity was had for conferring authoritatively with those who owned the ground, and if it was known that the purchase would depend in a great measure upon the reasonable character of the offers that were presented, there would be an opportunity of getting what was needed at a fair price, and probably of making a better selection of that which was desired than by any other mode.

For this reason the committee have reported a bill which simply provides a commission, and that commission embraces the officers who have had charge so far of the surveys, together with General Meigs, who is placed at the head of it, and authorizes them to confer with the owners of the property, to see what terms can be had, what grounds may be held by minor heirs or others that it will be necessary to condemn, and to find what portions may be left out and still not impair the desirability of the grounds for the purposes of a public park, and report the whole of their investigations and all their propositions at as early a day as may be found practicable.

I do not think there is anything in the bill that can be objected to, if it is desirable to enter upon the work of securing for the city of Washington a public park. I think it is of such a character that will probably conduce more to the security of the government than any other which can be drawn. As to the necessity and the desirability of initiating such a proposition and obtaining the necessary location now, while the ground can be had on reasonable terms, I do not think there is much room for question. The ground in the vicinity of this city must soon become immensely valuable, now that the uncertainty with which sectional discord and disunion so long threatened the stability of the capital has passed away. At the present time Rock creek and its adjacent heights has few residences upon it, and those of comparatively trifling value, and the whole area surveyed can be had, as is estimated by General Michler in the report he has submitted, at an average price of perhaps less than \$200 an acre. This would make a total cost of less than half a million dollars; a mere trifle of expenditure for “a thing of beauty” which will prove “a joy forever.”

Mr. President, I had intended, when presenting this subject to the consideration of the Senate, to have remarked somewhat freely upon the influence such surroundings are calculated to exert upon those who come hither from all parts of this great nation to bend their minds to the dismal science of law-making and of government. Those who, for any length of time, have undergone the wear and tear of such life as this, who have all their energies run to brain, and all their souls fused into politics, need not be told that anything which holds out hope of either mental or passionnal relief is seized upon with avidity. How necessary, then, that all the ennobling influences of nature—the scenic splendor of shifting views, the life and animation of gay concourse, the uprisen majesty of the forest, the intoxicating gladness of spring flowers, the laugh of the heavens through playing branches, the shimmer of the waters, the song of birds, grace-

ful forms, inspirations—should be so abundantly grouped around this nation's capital. There is no expenditure that can be made which shall add to the grandeur or adornment of the public buildings that fill so largely the eye of admiration of the world, or of the vast libraries that are accumulating so rapidly the treasures of all languages within your reach, or of the conservatories and gardens and cabinets that minister to your tastes, that will not freely be sanctioned by the people; for such in itself is the establishment of a nation's universality, whither all may come to wonder and to learn, and in which all may feel a rightful patriotic pride. Only let it be worthy. Let your doing be on a scale commensurate with the pride to which you minister and the people you are sent hither to represent. And it is in the same spirit that I would have you, senators, inaugurate a public park that shall have no rival anywhere for beauty or extent or ornamentation, as it will have none for the illustrious characters gathered from a whole continent in the after time to wisely rule our republic from this centre of its power.

Mr. President, the experience of foreign nations has been worth much on this subject of the extent of their places of public resort, and I do not think it would be wise in us altogether to disregard it. There it has been found that size was an invaluable feature, and even in the present day continued effort is being made to enlarge those now in existence. The latest data I have been able to lay my hands upon gives the dimensions of the more celebrated European parks as follows: Hyde Park, 380 acres; Regent's Park, 372 acres; Windsor Little Park, 300 acres; Windsor Great Park, 3,500 acres; Richmond Park; 2,250 acres; Phoenix Park, at Dublin, 2,000 acres; Garden of Versailles, 3,000 acres; Bois de Bologne, 2,158 acres; Englische Garten, at Munich, 500 acres; and the Prater, at Vienna, 1,500 acres. The Central Park, in New York city, contains 840 acres, and authority has just been granted for the laying out of a park at Chicago of 2,000 acres. It will thus be made to appear that the amount of territory embraced in the present survey, 2,700 acres, does not exceed many of the more famous of those I have cited. And yet what would be thought of the proposition to reduce the area of either Windsor Park or Phoenix Park, or the Garden at Versailles? It would be simply set down, sir, as a barbarism. Let us, then, profit by the accumulated experience of so many metropolitan cities and so many great nations, and secure, while we may, here at the city of Washington, ample scope for a national park worthy of our people and our country.

But I perceive it is unnecessary to prolong any speech in behalf of what the Senate is evidently so willing to concur in voting. I will close, therefore, with expressing the hope that no delays attendant upon the close of the session may cause this measure to fail in the other branch of Congress, and that if it shall become a law the commission organized under it will not be too contracted in their views as to the extent of ground that should be embraced in this national park.

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*Copy of a letter from General M. C. Meigs, appended to the annual report, dated October 1, 1867, of Brevet Brigadier General N. Michler, in charge of public buildings, grounds, and works.*

DRESDEN, July 27, 1867.

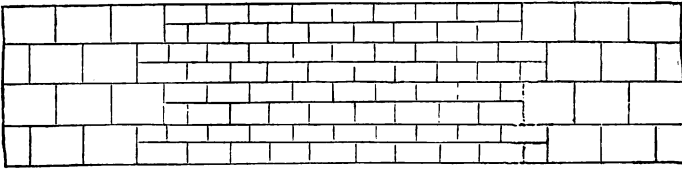
DEAR GENERAL: You are, I believe, now in charge of the paving of the avenues, for which appropriations have been made by Congress, and of the expenditure of the funds appropriated for the public places in Washington.

The streets of the cities of Germany, Denmark and Prussia, which I have lately seen, are so well paved that I am induced to send you a few notes thereon.

The pavement in general use is like what we call Belgian. The blocks used are not large, but they are laid in regular courses across the line of travel. I



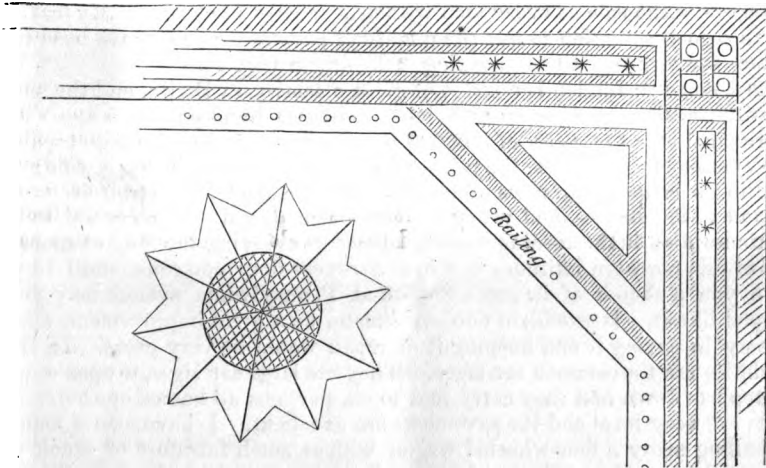
noticed that larger blocks are often used on the margin of carriage roads than in the more frequented middle of the way.



Care seems to be taken to lay the courses at right angles to the line of travel. In a few streets they are laid diagonally, but in only a few. The stones seem to be laid on a bed of gravel or coarse sand. In the repairs I have seen making I saw no other preparation as foundation, but I am not sure that in first paving a street some greater and more elaborate preparation is not made. The French *Ponts et Chaussées* reports will doubtless give full details.

Sidewalks here are never paved with brick. There is generally a line of flags admitting of walking in single file; in the wider and more important streets two such lines. The rest of the sidewalk is either paved as the street, sometimes worse, *i. e.*, with cobble-stones, which are torture to the feet, or else it is paved with small stones about the size used for concrete or macadamizing, which are laid in sand or gravel as close as they can be packed, points down and flat bases up, and then rammed to a smooth and even surface. These make a pavement easier to the foot than either flags or bricks, and as the stones are sorted and laid in patterns, far more pleasing to the eye than either. A space around every fountain or statue in the public places and streets of Berlin is paved with this mosaic. The colors used are red, gray, black, brown, which seem to be granites and sandstones, and white, which is of marble fragments.

In the pavement about the monument to Frederick the Great, the pieces of stone average two square inches surface each, or fifty of them fill a space of 10 by 10 inches. Below is one corner of this pavement :



Stars 10-rayed—white, with red centres. Color of pavement—red, gray, blue, white.

This pavement never gets muddy like our gravel walks. It dries after a shower quickly, even more quickly than brick, and far more rapidly than flag-stone.

A shower brings out the colors more vividly and improves its appearance. It is very pleasant to the foot and very ornamental to the street and squares.

Your resources in Washington are red and gray sandstone from the Seneca quarries, brown from the stone-yards, blue limestone veined with white from the Potomac, gray granite, red fragments of brick, white spauls from the marble yards of the city, and doubtless other colors would be found if the attempt to introduce this pavement around the Greenough's Washington, the Jackson, the Mills's Washington, the fountain at the Capitol, &c., was made.

Shop-keepers in Berlin lay the whole pavement in front of their shops in this rude and cheap mosaic, sometimes. The name of the store or the number is sometimes introduced in block letters—white or black. The experience of these old towns leads them to pave the whole of their public squares which are not parks. They are used as market places—tables or wagons standing all over them. They are paved as the streets—nearly level—with very shallow undulations serving to carry off the water to the gully holes of sewers passing under them. The streets, which come in irregularly, seem to continue their pavement across on the direct lines of travel. The intermediate spaces are paved in irregular lines, or laid off into circles, triangles, &c., in which sometimes stones sorted of different tints are used with good ornamental effect, and sometimes the decoration depends upon the coursing above the block.

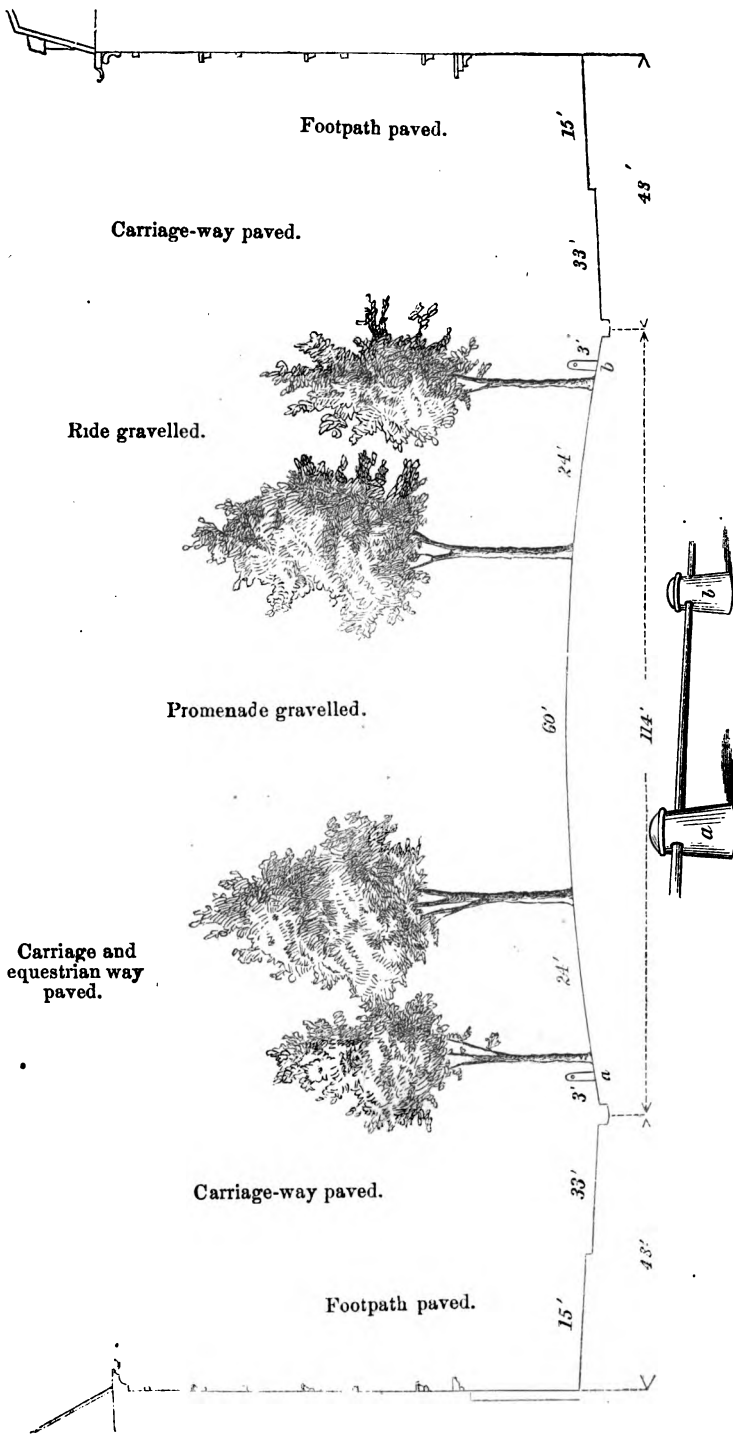
The space in front of such buildings as the Capitol is, in Europe—as far as I have yet seen—always paved. The court-yards of palaces are also paved like streets; not with flags or regularly cut stones, but with rough rectangular blocks like those used in Belgian pavements, and with mosaic of the small two-inch stone like Berlin trottoirs.

Rain and the broom keep all free from dust. The waste of gravel and sand east of the Capitol would be much improved by such a pavement; Belgian on all the lines much used by carriages—small mosaic on those parts used principally by footmen.

Asphalte is also much used for sidewalks in the German cities, as in Paris. With us it is too expensive, and I do not find it as pleasant to the foot as the small stone mosaic pavement, whose irregularity is sufficient to prevent the soreness caused by treading always upon a flat, hard stone surface, which presses the same parts of the sole at every step without any relief or change. My feet have been in a good condition to test the quality of pavement since I have been here, for since my sickness a little walking makes them very sore.

The Unter-den-Linden is a street of great celebrity in Berlin, and the people are still praising the electors who laid it out two hundred years ago. It is the principal street of a city of 600,000 people; upon it are the royal palaces, those of most of the princes, the principal shops and hotels. It has a wide gravel walk in its centre, four rows of trees which give shade, wide trottoirs or sidewalks next the houses, and yet it is never encumbered. The central walk is sometimes filled in the evening with promenaders enjoying the long summer twilight of this northern latitude, in which darkness does not come until 10 p. m. I give you a sketch of it, and I hope that Pennsylvania avenue may yet be arranged like it. It would, in our hot climate, be a great improvement, and the economy in paving it and keeping it in repair would be very great. In Berlin droschkies are the common carriages. They are large carriages, to open or close. The top lets down and they carry four to six persons, all behind one horse. The streets are very level and the pavements are excellent. I have seen a man and dog pulling many a four-wheeled wagon with as much furniture or truck on it as a good horse and cart draw with us. Dogs are in universal use by the street porters in place of horses—generally only one dog harnessed along a pole. The man or boy takes hold of the pole and pulls by a "bricole" over gutters; the dog does the whole work in smooth places.

But to the Unter-den-Linden, whose trees are not very large. They have, I suppose, perished in occupations of the city by hostile armies and been repeatedly renewed.



*a* and *b* represent lines of stone posts about 15 feet apart, connected by iron rods about 1½ inch.

If the thirty-three feet carriage way happens to be full or obstructed, carriages take the twenty-four feet line between the trees, but these twenty-four feet lines are ordinarily used only by equestrians and by porters, who drag their wagons, assisted by their dogs. One of them, that on the north side of the promenade, is gravelled to be used as a summer road.

This street is the resort for business and recreation of all Berlin, and of all strangers.

Pennsylvania avenue is capable of a similar improvement. You see ninety feet are given exclusively to footmen, sixty-six feet to carriages, forty-eight feet are common property of footmen, horsemen, and carriages.

Hoping that these details will interest you, and serve, perhaps, as authority in introducing improvements as yet novel in Washington,

I am, with regards to our friends at the club, yours truly,

M. C. MEIGS.

General MICHLER, *Washington, D. C.*

A true copy :

N. MICHLER,

*Major of Engineers, Bvt. Brig. Gen. U. S. A.*

*Report of the engineer of the Washington aqueduct, appended to the annual report, dated October 1, 1867, of Brevet Brigadier General N. Michler, in charge of public buildings, grounds, and works.*

OFFICE OF THE WASHINGTON AQUEDUCT,

*Washington, D. C., October 1, 1867.*

GENERAL: I have the honor to submit the annual report of the operations upon the Washington aqueduct during the past year, and an estimate of the amount required for its completion.

#### POTOMAC DAM.

At the date of the last annual report, October 1, 1866, work had been resumed on the Potomac dam at Great Falls, and it was confidently predicted that by the beginning of December the foundation masonry would be completed across the Maryland channel to Conn's island. A heavy freshet occurring on the 16th of October caused high water for the remainder of the season and a suspension of work upon the foundation masonry. The superstructure masonry was continued until December 20, when all operations were suspended for the winter.

This year the spring freshets were unusually high, accompanied by large masses of ice. Although the dam was unfinished, the masonry sustained very little damage. The water did not subside sufficiently until the 20th of June, when a large force of masons and laborers resumed operations, and although the season has been unusually wet and the work often interrupted by freshets, yet, owing to the energy and perseverance of the contractors, Messrs. Charles H. Sherrill and Anson Bangs, the foundation and superstructure masonry are now completed across the Maryland channel to Conn's island. A large portion of the temporary dam was washed away during the spring freshets, and several times during the summer. It was repaired after each freshet, and kept in repair until the present time.

#### GATEHOUSE AT GREAT FALLS.

The work on this gatehouse has been resumed, and it will be completed before the beginning of winter. The floor and the timbers supporting the iron gates

are very much decayed, and should be replaced with flooring and girders of cast-iron.

#### BRIDGES.

The stone bridges on the aqueduct are all unfinished. An estimate of the cost of completing them will be found at the end of this report, and also in each of the annual reports for the years 1864, 1865, and 1866.

The importance of completing these bridges cannot be overestimated. In their present state they are rapidly deteriorating, and if we have a succession of winters as cold and changeable as the last, their usefulness for aqueduct purposes will soon become seriously impaired.

#### CONNECTING CONDUIT AT THE RECEIVING RESERVOIR.

The work on the connecting conduit was resumed August 13, 1866, and vigorously prosecuted until its completion. Dalecarlia tunnel, eight hundred feet in length, was continued day and night until March 4th, when it was pierced through. On August 8th the waters of Powder Mill Branch and of the receiving reservoir were shut off, and the water of the Potomac (which since the 5th of December, 1863, had emptied into the receiving reservoir) was turned into the new connecting conduit.

In making the excavations for this conduit, more rock was encountered than was estimated for; nearly its entire length was built on rock foundations, but the most expensive and difficult portion of the work was Dalecarlia tunnel, a large part of which is constructed through soft and loose rock that is not self-sustaining. This part of the tunnel, as it progressed, was carefully shored with heavy timbers and every precaution used to protect the lives of the miners and to prevent the roof and sides from caving, yet extensive slides took place and several accidents happened to the workmen, though only one life was lost. Over one hundred feet of the south heading caved in and became an open cutting.

The cost of the connecting conduit has consequently exceeded the appropriation made by Congress in July, 1866, and there is a balance due the contractors, Messrs. Sherrill and Bangs.

Three hundred feet of the tunnel will have to be arched, and the water slopes of the embankment will have to be lined with ripraps to protect them from the waves of the receiving reservoir.

#### THE RECEIVING RESERVOIR.

On August 8th, when the Potomac water was turned into the connecting conduit, this reservoir was shut off from the conduit and has not been used since. The water in it, which had become very impure, was emptied out; it was refilled again and now contains about four days' supply, which can be used in the event of an accident happening to the conduit above.

This reservoir could be improved and made very useful for storage and settling of water, by deepening the shallow parts and lining the slopes with ripraps. Eventually this improvement will be found necessary. The lands in connection with this reservoir might be improved and beautified, and made into a park which would be easy of access and a desirable place of resort.

#### DISTRIBUTING RESERVOIR.

Work on the distributing reservoir was suspended in June, 1864. Since then it has been used for storage and settling purposes. On the completion of the connecting conduit, the Potomac water was introduced directly into this reservoir. Owing to its unfinished condition it is necessary to keep the water at a low elevation. When it is finished the water can be raised several feet higher,

which will give a greater pressure in the pipes and a largely increased supply of water to Capitol Hill, and other high points in the cities.

This reservoir has been in use for over three years and no repairs have been made on any part of it. The estimate for completing it is, consequently, considerably increased, and the longer it is used in its present state the greater must be the final cost of completing it.

In the estimate I have included the cost of laying an iron main from the distributing reservoir pipe vault to Foundry branch pipe vault, to be used either for a supply or drain pipe. If, from any cause, it becomes necessary to empty this reservoir, it can be done only by shutting off one of the mains and using it for a drain pipe. The necessity of having separate drainage and supply pipes is sufficiently obvious. The several gate-houses in connection with this reservoir are in an incomplete condition, and during the cold weather of last winter were a constant source of expense and anxiety, and a watchman had to be employed, day and night, to keep the water in them from freezing over.

#### HIGH SERVICE RESERVOIR AT GEORGETOWN.

The high service reservoir is also unfinished, but has been in constant use since June, 1865. Its present appearance is very unsightly; either it should be finished according to the original design, or the dome should be cut down to the level of the gravel walk and protected by an ornamental iron railing.

#### WATER-PRESSURE ENGINE.

The Worthington water-pressure engine is located in the west abutment of bridge No. 6. It has supplied the high service with water for nearly eight years. It was first put in operation in November, 1859, and worked till October 20, 1862, when it was stopped for repairs. The pistons were taken out and sent to New York, where new cylinders were cast and fitted to them, and the engine was put in motion November 11, 1862. It was stopped again for repairs in August, 1863, and the valves, which had become worn, were taken out and planed. Since then it has been stopped but a few hours at a time for slight repairs until the 16th of last month, when it was taken apart and fitted with new pistons and completely cleaned and repaired. This occupied seven days, and the heights were supplied with water by the Georgetown steam fire-engine, which was loaned by the city government for that purpose. The water-pressure engine is now as good as new, and is again in constant operation.

#### IRON BRIDGES.

Bridge No. 5 over College pond is in good condition.

Bridge No. 6 over Rock creek is now being repaired. The forty-eight inch tubes have been thoroughly scraped and painted; the ornamental wreaths which encircle the joints of the tubes had become loose, and many of them dropped off; several fell into Rock creek and cannot be found; the others, and those which were loose and liable to fall, have been replaced and securely bolted to the tubes. The sidewalks are nearly worn out, and the roadway requires a new floor to bring it even with the rails of the Washington and Georgetown railway.

#### GOVERNMENT MAINS.

The government mains are all in good condition. The twelve-inch main in Pennsylvania avenue between Sixth and Eighth streets east was lowered three feet during the past summer, in order to conform to the grade of the avenue; and a twelve-inch stop valve was placed in the main near Sixth street east. In North B street a twenty-inch main is now being laid, and will be connected by a twelve-inch main with the pipes in the Capitol. This will increase the supply of water to the Capitol, but it will not be abundant until the distributing reservoir is completed, and the water raised to a higher elevation.

## LANDS.

The United States occupy for aqueduct purposes the following described parcels of land :

At bridge 6, Georgetown, the lot on which are located the pipe yard, work shop, and office.

At the high service reservoir, a lot fronting on High street, and partly covered by the reservoir embankment.

In Montgomery county, the roadway across the farm of William Brooke, and near Great Falls the roadway across the farms of Jackson, Collins, and Anderson.

At Great Falls  $5\frac{44}{100}$  acres of the estate of the late Hall Neilson.

Each of the above described pieces will always be required for aqueduct use, and as the United States do not own them, I respectfully recommend that they be purchased.

## FINANCIAL STATEMENT.

At the date of the last annual report the balance in the treasury applicable to this work . . . . .	\$117,198 04
Appropriated by Congress December 20, 1866 . . . . .	12,000 00
Appropriated by Congress March 2, 1867 . . . . .	20,000 00
<b>Total . . . . .</b>	<b>149,198 04</b>

The expenditures to date are as follows :

For construction of connecting conduit . . . . .	\$69,248 86
For construction of Potomac dam . . . . .	33,057 90
For engineering, superintendence, and repairs . . . . .	21,208 14
For office rent . . . . .	187 50
For gas and fuel . . . . .	188 85
For stationery . . . . .	96 25
For rent of land . . . . .	215 51
For printing and advertising . . . . .	128 25
For internal revenue . . . . .	204 97
For paving approaches to bridge No. 6 . . . . .	817 25
For repairs to water-pressure engine . . . . .	300 00
Balance in treasury October 1, 1867 . . . . .	23,544 56
<b>Total . . . . .</b>	<b>149,198 04</b>

Summary of appropriations made by Congress for the Washington aqueduct :

For April 30, 1852 . . . . .	\$5,000 00
For March 3, 1853 . . . . .	100,000 00
For March 3, 1855 . . . . .	250,000 00
For August 18, 1856 . . . . .	250,000 00
For March 3, 1857 . . . . .	1,000,000 00
For June 12, 1858 . . . . .	800,000 00
For June 25, 1860 . . . . .	500,000 00
For July 4, 1864 . . . . .	150,000 00
For July 28, 1866 . . . . .	142,584 00
For December 20, 1866 . . . . .	12,000 00
For March 2, 1867 . . . . .	20,000 00
<b>Total . . . . .</b>	<b>3,229,584 00</b>



## ESTIMATE OF THE COST OF COMPLETING THE WASHINGTON AQUEDUCT.

For rent and purchase of 5,44 $\frac{1}{10}$ acres of land at Great Falls...	\$1,320 00
For purchase of roadway from Great Falls to conduit, 2,1 $\frac{3}{10}$ miles, = 18.4 acres.....	1,012 00
For purchase of roadway across land owned by Wm. Brooke..	550 00
For rent and purchase of land at high service reservoir.....	3,300 00
For rent and purchase of land at bridge No. 6.....	2,640 00
For excavating rocks, trees, and bushes above dam at Great Falls.....	5,500 00
For lining and repairing tunnel No. 1.....	1,650 00
For completing stone bridges.....	27,500 00
For increasing embankment over conduit and macadamizing roads.....	11,000 00
For lining 350 feet of connecting conduit tunnel.....	15,400 00
For riprapping water-face of connecting conduit embankment..	11,000 00
For excavating the bottom of distributing reservoir to an addi- tional depth of 13 feet and lining the interior slopes with rub- ble masonry laid in cement.....	411,115 00
For completing gate-houses at distributing reservoir.....	44,538 00
For completing high service reservoir.....	8,800 00
For ventilators over conduit.....	3,080 00
For fencing conduit and reservoirs.....	22,000 00
For 30-inch pipe from distributing reservoir pipe vault to Foun- dry branch pipe vault.....	78,633 00
For building office at bridge No. 6... ..	3,300 00
For deficiency for the year ending June 30, 1868.....	27,500 00
For engineering, superintendence, and repairs for the year end- ing June 30, 1869.....	33,000 00
Total.....	712,838 00
If to the above be added the amount of former appropriations..	3,229,584 00

The total will be....., 3,942,422 00.  
Which amount will represent the total cost of the Washington aqueduct when  
fully completed.

I am, general, very respectfully, your obedient servant,

THEODORE B. SAMO,

Chief Engineer.

Brevet Brigadier General N. MICHLER,

Major of Engineers United States Army.





JAN 8 '80



